

IN THE CLAIMS

1. (Currently amended) A high throughput chemical screening system comprising:
a chemical library comprising storage locations for a plurality of multi-well plates, each of which comprises individual chemical wells for containing samples;
a computer controlled chemical well retriever for programmable selection and retrieval of at least one of said multiwell plates comprising selected ones of said chemical wells;
a transport path coupled to said chemical library for receiving said at least one multiwell plate from and returning said at least one multiwell plate to said chemical library; and
a plurality of automated liquid handling devices having aspiration/dispensation heads operatively coupled to said transport path, whereby said high throughput chemical screening system is configured to process at least approximately 25,000 chemical samples in a 24 hour period;
wherein said system is programmable via a user interface to retrieve and handle either (a) the samples from every one of the chemical wells of said at least one multiwell plate or (b) the samples from a subset of chemical wells within said at least one multiwell plate.

2. (Original) The chemical screener of Claim 1, wherein said transport path comprises a two dimensional array of linearly extending transport lanes.

3. (Original) The chemical screener of Claim 1, wherein said automated liquid handling devices comprise reagent dispensers configured to aspirate reagents from selected ones of said chemical wells and to dispense reagents into selected ones of said chemical wells.

Claims 4 and 5 Previously cancelled

6. (Previously amended) The chemical screener of Claim 1, wherein said automated multi- well plate retriever comprises an integral plate storage buffer.

Claims 7-19 Previously cancelled

20. (Currently amended) A high throughput chemical screener comprising:
a chemical library comprising storage locations for at least approximately 1000 multi-well plates, each having a plurality of chemicals;
a computer controlled chemical retriever for programmable selection and retrieval of selected ones of said plates;
a transport path coupled to said chemical library;
a plurality of automated liquid handling devices having aspiration/dispensation heads coupled to said transport path, wherein said screener is programmable via a user interface to retrieve and handle either (a) the samples from every one of the chemical wells of an entire multiwell plate or (b) the samples from a subset of chemical wells within said multiwell plate.

21. (Original) The chemical screener of Claim 20, wherein parallel transport along said transport path and parallel processing by said automated liquid handling devices achieves a throughput of at least approximately 100,000 chemical samples in a 24 hour period.

22. (Currently amended) A chemical storage apparatus containing chemical samples to be retrieved comprising:

a plurality of storage locations for chemicals;
a moving automated chemical retriever comprising a robotic apparatus configured to retrieve chemicals from said storage locations;
a chemical storage buffer coupled to and moving with said moving automated chemical retriever wherein said chemical storage buffer is configured for receiving and temporarily storing chemicals retrieved from said storage locations by said robotic apparatus.

23. (Original) The chemical storage apparatus of Claim 22, comprising at least approximately 2000 storage locations for multi-well plates.

24. (Currently amended) A high throughput chemical screening system comprising:
a chemical library comprising storage locations for at least approximately 1000 multi-well plates, each of which comprises individual chemical wells for containing samples, such that said library comprises at least approximately 100,000 addressable chemical wells;
a computer controlled chemical well retriever for programmable selection and retrieval of at least one of said multiwell plates comprising selected ones of said chemical wells;
a transport path coupled to said chemical library; and
a plurality of automated liquid handling devices having aspiration/dispensation heads coupled to said transport path;
wherein said system is programmable via a user interface to retrieve and handle either (a) the samples from every one of the chemical wells of said at least one multiwell plate or (b) the samples from a subset of chemical wells within said at least one multiwell plate.